

main competitor to cable in the market for residential high-speed Internet services is currently DSL[.]”⁶⁰

The consensus among the FCC, DOJ, FTC, and academicians that broadband services for the mass market represent a discrete market product – and that DSL and cable modem services are both part of that same product market – is also shared by the industry analysts who study that market. They have issued a blizzard of reports during the past two years on the “battle for broadband customers” among cable operators, telephone companies, satellite, and fixed wireless providers.⁶¹

Even SBC’s competitors in the advanced services market agree that DSL and cable modem service are part of the same product market. AT&T and MediaOne, for example, endorsing the Commission’s finding, cited above, in the *First Advanced Services Report*, have argued:

broadband Internet access services constitute a discrete product market. To the contrary, the Commission has in numerous other contexts treated the broadband Internet access market as a discrete product market.

⁶⁰ *Id.* at ¶ 65.

⁶¹ *See, e.g.*, YANKEE GROUP, Cable Modem Providers Continue to Lead the High-Speed Internet Charge: The Yankee Group’s Predictions on Consumer Broadband Services, August 2001. *See also* YANKEE GROUP, Residential Broadband: Cable Modems and DSL Reach Critical Mass, March 2001 (reporting on the “fight” for high-speed Internet subscribers between cable modems and DSL); MORGAN STANLEY DEAN WITTER, Telecom Trend Tracker: Defense is Best Strategy, August 17, 2001 at 15 (“[C]able modem competition also continues to remain a challenge” for the ILECs); ARNHOLD AND S. BLEICHROEDER, DSL: High Growth or False Hope, Aug. 16, 2001 at 15: (“In our view, there is already enough competition [for DSL services] from cable and satellite to ensure fair pricing of high-speed Internet services.”); JP MORGAN AND MCKINSEY & CO., A Comprehensive Analysis of Demand, Supply, Economics, and Industry Dynamics in the U.S. Broadband Market, April 2, 2001 (describing the “battle” for new high-speed Internet subscribers between cable modem, DSL, and satellite providers). *And see* COMMUNICATIONS DAILY, *TW Cable Tops AT&T as Biggest High-Speed Provider, Study Shows*, Aug. 17, 2001 (explaining that study of broadband deployment by Warren Communications News’ Telecom Research Group “looked at both cable modem and DSL services because technological methods of delivery were becoming less relevant than results. In the long run, these companies see themselves as competitors with each other[.]”)

in the near term cable modem service is likely to be one of many nearly equally attractive alternatives with counterbalancing benefits and drawbacks. ... [M]ajor industry players have recently announced that they intend to invest billions of dollars in lots of different technologies used to provide last-mile broadband transport, such as DSL, satellites and fixed wireless. ... In this regard, claims that DSL and satellites are fundamentally flawed as broadband alternatives appear to us to amount to little more than histrionics.⁶²

Likewise, WorldCom has stated “the only alternative that AT&T’s customers are likely to have to AT&T’s broadband service is the broadband service offered by an ILEC.”⁶³ And Time Warner (in comments jointly filed with AOL) has touted “the significant actual and potential competition affording consumers adequate choice across existing and emerging [broadband] platforms.”⁶⁴

⁶² Reply Comments of AT&T Corp. and MediaOne Group, Inc., CS Docket No. 99-251, Sept. 17, 1999, Declaration of Janusz A. Ordovery and Robert D. Willig, ¶¶ 98-99. Although AT&T has argued that mass market broadband services do not comprise a complete product market, its position has been that the market is *broader* in scope, not that individual high-speed Internet access services comprise discrete product markets. Specifically, it has argued that such services are part of a larger market that also includes narrowband Internet access services. But as Crandall and Sidak note, “[w]hether one should include narrowband Internet services in the market is largely academic for present purposes.” Since SBC is asking for non-dominant status only in its provision of DSL transport services, not narrowband transport services, a conclusion that narrowband and broadband Internet access services are part of the same product market would actually make SBC’s case even stronger: It would mean that, even after the detariffing of SBC’s broadband service, consumers would continue to have a regulated substitute service (a narrowband connection to an Internet provider) available to them. *Crandall/Sidak Declaration*, ¶ 41.

⁶³ Comments of MCI WorldCom Inc., CS Docket No. 99-251, Aug. 23, 1999 at 8.

⁶⁴ Reply of America Online, Inc. and Time Warner Inc., CS Docket No. 00-30, May 11, 2000 at 16. In contrast to AOL, some ISPs may claim that, while DSL-based Internet access service competes with cable modem service, DSL transport service sold by SBC to ISPs does not. They may claim that because SBC sells its DSL transport service to ISPs, rather than directly to mass market consumers, its DSL prices are not constrained by cable modem pricing. Any such argument would be nonsense. Unless ISPs are making excess profits when they sell DSL service (which ISPs would presumably deny), they would have to pass on to consumers any price increase by SBC for DSL transport service. Thus SBC’s DSL transport prices, no less than its DSL Internet service prices, are directly constrained by the retail price of cable modem service. *See Crandall/Sidak Declaration*, ¶ 39 n. 51.

The universally shared view - that broadband services for the mass market are all part of a single product market - is correct. As shown below and in the *Crandall/Sidak Declaration*, there is “no doubt” that these services are “reasonably interchangeable.”⁶⁵

First, from a functional standpoint, they are substantially similar. All of them offer the features that, surveys show, consumers value the most in broadband services: the ability to surf the web more quickly and efficiently; access to services and features that require high bandwidth; an “always-on” connection; and the ability to access the Internet and use their telephone at the same time.⁶⁶

Second, consumers view these services as substitutes. Surveys show that potential subscribers to broadband services have no particular preference between DSL and cable modem platforms.⁶⁷

Third, providers of mass market advanced services view themselves as competitors. Comcast’s 2001 10K filing with the Securities and Exchange Commission makes plain that Comcast considers DSL to be its most important competitor. Likewise, the AT&T broadband services website includes a white paper that compares the functions of cable modem and DSL services. The white paper contends that “[b]oth xDSL and cable modem service will bring advances to customers, but cable’s [hybrid fiber-co-axial] advantages with @Home’s integrated solution ensure it will dominate.”⁶⁸ AT&T Broadband’s website for mass market customers includes answers to a list of “frequently asked questions,” which make clear that AT&T views

⁶⁵ *Crandall/Sidak Declaration*, ¶ 34.

⁶⁶ *Id.*, ¶ 35.

⁶⁷ *Id.*, ¶ 36.

DSL and cable modem service to be competitive services. Excerpts from that list are shown in Table 1 below.

⁶⁸ “xDSL vs. Excite@Home’s HFC/Cable Modem Network: The Facts,” at <http://www.google.com/search?q=cache:b-73obahgpo:www.bbs.att.com/cable/doc/xDSL-white-paper.pdf+&hl=en>, June 21, 2001.

TABLE 1: EXCERPTS FROM AT&T BROADBAND WEBSITE⁶⁹

What are the differences between AT&T high-speed cable Internet service and DSL?

AT&T high-speed cable Internet service delivers content directly to your personal computer via a cable connection, cable modem and customized software. AT&T Broadband provides the tools a customer needs to participate fully in the online community at speeds that blow traditional dial-up modems away. The result: a fast, high-speed cable Internet connection.

DSL, or Digital Subscriber Line is a modem technology that transforms ordinary phone lines (also known as "twisted copper pairs") into high-speed digital lines for fast Internet access. You must have a DSL modem and live within a certain distance of your telephone company's central office to get a DSL Internet service.

How much faster is the AT&T high-speed cable Internet service than DSL?

AT&T's broadband technology can offers lightning-fast speeds greater than dial-up phone modems and nearly every type of DSL service. For example, a file that takes nine minutes to download over a 28.8 phone modem may take two minutes on an Integrated Services Digital Network, or ISDN, a common type of DSL service, compared to as little as two seconds on AT&T Broadband network. Actual DSL speeds experienced by users connecting to the Internet will vary depending on:

- ◆ How far you live from the telephone company's central office
- ◆ The DSL product you're using
- ◆ The quality of your phone line
- ◆ Congestion on the Internet

In addition, many types of DSL service charge higher monthly fees for faster service. AT&T Broadband charges the same monthly rate for fast, consistent, cable Internet service.

Is it true that cable Internet services use a shared network platform while DSL services provide a dedicated line to my home?

Unless otherwise specified in the DSL package, DSL services dedicate a line from your home to the provider's central office, but that is where the dedicated connection ends and the bandwidth sharing begins. Internet traffic from your neighborhood meets at the provider's central office. Customers then battle for a connection to a Local ISP that is shared by residential users and possibly businesses.

AT&T Broadband operates its own global network that connects to the Internet at multiple locations. The network is based on a revolutionary network management model that is designed to overcome the performance limitations of the Internet.

AT&T Broadband's network connects online information providers to regional data centers through an ultra high-speed network. These regional data centers then connect to local neighborhood hubs, which in turn transport data to customers. This network of neighborhood hubs and regional data centers optimizes Internet data traffic through cached Web sites and therefore minimizes the performance degradation often experienced when accessing content on the congested "public" Internet.

⁶⁹ <http://www.attbroadband.com/services/other/InternetFAQ.html#17>, June 19, 2001

That cable modem providers perceive DSL providers to be their direct competitors was further underscored recently when it was widely reported that a number of cable companies were refusing to sell advertising time to phone companies to promote DSL service.⁷⁰ When asked about this practice, the responses of the cable operators were revealing. Steve Lang of AT&T Broadband replied “We are not put on this planet to make life for our competitors easy.” A spokeswoman for Charter Communications, a large cable operator based in St. Louis, said “this is the most direct competition to one of [our] core products and it would be cutting off [our] nose to spite [our] face to run it.” The Vice President for Programming and Communications for Cox’s San Diego operations said “[w]e routinely have taken the position of not taking advertising from our direct competitors.” And Gerald Levin, Chief Executive Officer of AOL Time Warner, defended the refusal of his company to run DSL ads, stating that many types of media outlets can decline rival ads.

Fourth, the different conduits for different mass market broadband Internet access services are generally priced fairly similarly.⁷¹ Indeed, the FCC has recognized that “cable Internet access providers and DSL operators offer services at around the same price[.]”⁷²

For all of these reasons, it is clear that advanced services provided for use by mass-market customers are “reasonably interchangeable” and thus part of a discrete and relevant product market.

⁷⁰ Seth Schiesel, “Cable Giants Refuse to Sell Ads to Internet Competitors,” *New York Times*, June 8, 2001 at A1; Erik Wemple, “Cable Giants Hit Over ISP Ad Policies,” *Cable World*, June 11, 2001.

⁷¹ See *Crandall/Sidak Declaration*, ¶ 38.

⁷² Seventh Annual Report, *Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, 16 FCC Rcd 6005 (2001), ¶ 53.

D. Advanced Services Provided To Larger Business Customers Represent A Discrete Product Market Without Relevant Sub-markets.

As explained above, the Commission's prior holdings – that packet-switched services comprise a discrete market, and that larger business services are distinct from mass-market services – indicate that there is a distinct product market for advanced services provided to larger business customers. SBC shows below that this is, in fact, the case.

There are two primary services in the larger business advanced services market: Frame Relay service and Asynchronous Transfer Mode (“ATM”) service. The market also includes, at a minimum, two additional services: Switched Multimegabit Data Service (“SMDS”) and Gigabit Ethernet service, both of which currently have limited deployment.⁷³ As demonstrated below, these services “are close substitutes for each other,” but have “no other close demand substitutes.”⁷⁴

As an initial matter, all of these services rely on similar packet switching networks that operate independently from the public switched telephone network. These packet switching networks share several key technical characteristics. *First*, they have the same basic architecture, which consists of three main components: (1) a local facility between an end-user premises and a port on a packet switch; (2) a packet switch; and (3) transport between packet switches. *Second*, each of these networks is “public” in that they permit transmissions between any two points connected to the network. *Third*, while different packet switching networks use different

⁷³ In addition, SBC has one DSL offering designed for business customers – Remote Local Area Network (“RLAN”) – that is used principally by businesses to provide their employees with high-speed access from their homes to the corporate LAN. This service is provided on an extremely limited basis, however, with only about 4600 lines in service. The relatively insignificant scope of this service makes it inconsequential to the analysis here. In any event, there is significant competition for this service, both from the advanced services provided to larger business customers that are discussed below, as well as from advanced services, such as Excite@Work, that cable modem providers offer to business customers.

⁷⁴ *BOC Classification Order*, ¶ 31.

communications protocols, all such protocols are “connectionless” – that is, they permit transmissions between two points without first establishing a dedicated connection between them. *Finally*, each of these networks uses diverse routing, which permits highly reliable and secure communications.

Moreover, each of the services in this market is used principally for high-speed transmission. Two services in this market – Frame Relay and SMDS – are offered at the lowest speed at which a service becomes advanced (56 kbps) under the *SBC/Ameritech Merger Order*,⁷⁵ but even these services are typically used at much higher speeds.⁷⁶ For example, approximately 47 percent of Frame Relay revenues are from services provided at full DS-1 speeds (1.5 Mbps) or above, and an additional 25 percent are from services provided at fractional DS-1 speeds.⁷⁷ Likewise, approximately 47 percent of all SMDS ports are for services provided at full DS-1 speed or above, with an additional 4 percent provided at fractional DS-1 speeds.⁷⁸ ATM service is provided only at full DS-1 speeds or above, with the majority of ATM revenues coming from

⁷⁵ Both of these services are offered at speeds as low as 56 kbps. See Ron Kaplan, IDC, *U.S. Packet/Cell-Based Services Market Forecast and Analysis, 2000-2005* (2001) (“*IDC Packet Switching Report*”). These services are accordingly “advanced services” pursuant to the *SBC/Ameritech Order*. See *SBC/Ameritech Order App. C., Merger Conditions*, at ¶ 2 (defining advanced services to include “wireline telecommunications services . . . that rely on packetized technology and have the capability of supporting transmission speeds of at least 56 kilobits per second in both directions.”).

⁷⁶ The Commission has indeed recognized that Frame Relay and SMDS are “high-speed” services. See, e.g., *2000 Biennial Regulatory Review--Comprehensive Review of the Accounting Requirements and ARMIS Reporting Requirements for Incumbent Local Exchange Carriers: Phase 2 and Phase 3*, Notice of Proposed Rulemaking, 15 FCC Rcd 20568, ¶ 69 (2000) (“Switched multi-megabit data service (‘SMDS’), internet routers, and frame relay service are *high-speed* data telecommunications services built upon packet-switching technology. These services are widely offered to business customers for high-volume usage.”) (emphasis added); see also *Crandall/Sidak Declaration*, ¶ 97.

⁷⁷ *IDC Packet Switching Report* at 17, Table 6.

⁷⁸ *IDC Packet Switching Report* at 110, Table 42. Data on the breakdown of SMDS revenues by access speed are unavailable.

services provided at DS-3 speeds (44 Mbps).⁷⁹ Gigabit Ethernet is typically offered at speeds of 1.25 Gbps.⁸⁰

Given that the services in this market rely on similar packet switching networks, and are used primarily at high-speeds, they have become interchangeable from a functional standpoint.⁸¹ Today, larger business customers use each of the advanced services in this market predominantly for the same basic function: to transmit data at high speeds between computers or networks of computers (*e.g.*, local area networks (“LANs”) or wide area networks (“WANs”)), or between those computers or networks and the Internet.⁸² Although some services in this market also are capable of carrying voice traffic, this represents a very small percentage of what such services are used for today.⁸³

Customers not only use the various services within this market for the same functions, but view the individual services within the market as functionally interchangeable with one

⁷⁹ *IDC Packet Switching Report* at 54, Table 19.

⁸⁰ *See, e.g.*, <http://www.yipes.com/technology>.

⁸¹ *See Crandall/Sidak Declaration*, ¶ 97.

⁸² *See, e.g.*, Multimedia Telecommunications Association, Investext Rpt. No. 7044818, *Telecom-Market Review and Forecast '98 – Industry Report* at *10 (Jan. 1, 1998) (“LAN interconnection and access to the Internet are now nearly universal in the business marketplace. The focus has shifted to providing high-speed transmission for large volumes of data. Frame relay, ATM, T1/T3, ISDN, SMDS, Gigabit Ethernet, and fast modems are among the equipment and technologies enhancing the needs of local area network users.”).

⁸³ For example, analysts have estimated that, in 2000, voice-over-packet revenues were between \$600 million and \$1.4 billion in all of North America, whereas estimates for the packet switching market as a whole range from \$7 billion to \$12 billion in the U.S. alone. *See* Frost and Sullivan Press Release, *Voice and Data Convergence Goes Mainstream, VoIP Becomes Technology of The Future* (Aug. 6, 2001) (North American VoIP Services Markets wholesale revenues topped \$314 million in 2000 and retail traffic accounted for \$273 million in 2000); *Staying Ahead Of The Pack USA Datanet To Soon Offer New Services Series: Progress 2001*, Syracuse Herald American at AA12 (Feb. 4, 2001) (Probe Research of New Jersey estimates global revenue from voice-over-packet telephony at \$720 million in 2000); R. Rosenberg, *IP Telephony Vs. Circuit-Switching*, CED Buyer’s Guide Supplement (Nov. 15, 2000) (North American voice over packet revenues estimated at \$1.4 billion in 2000).

another.⁸⁴ For example, customers have been migrating from SMDS to Frame Relay service for many years, and SMDS is expected to be almost completely replaced by new advanced service technologies within the next few years.⁸⁵ Frame Relay is still growing at a steady rate; however, customers are increasingly migrating from Frame Relay to ATM.⁸⁶ And more recently, customers have begun to view new services like Gigabit Ethernet as a substitute for both ATM and Frame Relay.⁸⁷

Service providers likewise view the services in this market as interchangeable with one another.⁸⁸ For example, AT&T,⁸⁹ WorldCom,⁹⁰ Sprint,⁹¹ and other carriers⁹² all advertise ATM

⁸⁴ See *Crandall/Sidak Declaration*, ¶ 98.

⁸⁵ IDC Packet Switching Report at 4, 17.

⁸⁶ See, e.g., Stratecast Partners, *ATM and Frame Relay Market Assessment* at 13 (Sept. 2001) (“*Stratecast Report*”) (“ATM’s biggest appeal will continue to be at the high-end of the market, where companies can cost justify the use of the technology for their application requirements. At the low-end of the market, the technology will continue to be challenged by frame relay.”); Multimedia Telecommunications Association, Investext Rpt. No. 7044821, *Telecom-Market Review & Forecast 98-Lan-Wan Netwk Mkt* (Jan. 1, 1998) (“Current users of ATM fall into four general categories: ISPs; government, medical, and educational institutions; companies with heavy LAN interconnect requirements; and frame relay users with the need to connect high-capacity sites.”).

⁸⁷ See, e.g., V. Wortman, *The Real World of Integrated Networks; Industry Trend or Event*, Business Communications Review (April 1, 2001) (stating that the North Kansas City Hospital, when looking to establish a “secure, point-to-point network,” “considered alternatives including Gigabit Ethernet, but settled on ATM as a better performer that was not much more expensive.”); T. Wilson, *Gig Ethernet Surpassing ATM as Backbone*, Internetweek (Jun. 4, 1999) (information officer, Seton Hall University, “If I were starting our [backbone revamp] today, I would find Gigabit Ethernet very attractive.”).

⁸⁸ See *Crandall/Sidak Declaration*, ¶ 99.

⁸⁹ J. Jones, *AT&T Readies Outsourced E-mail, Network Services*, Infoworld Daily News (Jan. 24, 2000) (AT&T states that its Managed ATM service is “aimed at enterprises migrating out of total reliance on frame-relay networks to newer technologies such as ATM or frame relay-to-ATM service interworking.”); AT&T Corp., Data and IP Services, Products and Services, ATM <http://www.ipservices.att.com/brochures/atm.pdf> (AT&T’s High Speed Packet Network . . . enables you to migrate your network smoothly and gradually, on a location by location basis, from frame relay to ATM.”)

service as a replacement for Frame Relay service. Various service providers also have recognized that new services like Gigabit Ethernet are “cannibalizing” existing services like Frame Relay and ATM.⁹³

Finally, advanced services offered in the larger business market are priced at similar levels.⁹⁴ For example, under SBC’s tariff, a DS-3 link and port for Frame Relay service in SBC’s central region costs \$4,435 per month (under a one-year contract) plus a \$3,030 non-recurring charge.⁹⁵ By comparison, a DS-3 link and port for ATM service in SBC’s central region costs \$3,950 per month (under a one-year contract) plus a \$3,000 non-recurring charge.⁹⁶

⁹⁰ MCI WorldCom, Inc., Products and Services, ATM, <http://www.worldcom.com/us/products/datanetworking/atm/index.phtml>.) (WorldCom’s Frame Relay to ATM Service Interworking (FRASI) “provides a pathway of migration for today’s frame relay networks to the comprehensive networking capabilities of ATM.”).

⁹¹ See Sprint Corp., Sprint Business, Products and Solutions, Data, ATM, ATM and Frame Relay Technical Report, <http://www.sprintbiz.com/business/resources/resource/SPR6859c.pdf> (“Once your data or multimedia applications outgrow frame relay’s bandwidth limitations, Sprint can assist you in developing a gradual migration path to ATM.”)

⁹² See, e.g., Adelphia Business Solutions, Products, Frame Relay <http://www.adelphia-abs.com/html/products/frdatasheet.pdf> (“Frame relay can reduce your company’s operating costs, while improving your network performance and simplifying network management. Plus, it can help companies prepare for future network growth by providing a migration path to Asynchronous Transfer Mode (ATM) technology.”); Equant First Global Carrier to Integrate Voice and Data Over ATM, IP and Frame Relay, Global News Wire, CCN Disclosure (Apr. 22, 2000) (“Employ Equant’s new frame relay-to-ATM enhancement to seamlessly migrate from frame relay to ATM at speeds from 2Mbps and above, without having to install costly equipment to facilitate the conversion”).

⁹³ See, e.g., *Putting romance back in the data business*; *Company Business and Marketing*, CommunicationsWeek International at 1 (Feb. 5, 2001) (quote of Ron Beaumont, COO, WorldCom: “when we introduce IP VPNs we are going to cannibalize some of our frame relay business.”); A. Dornan, *Is There an Afterlife for ATM?*, Network Magazine at 76 (May 7, 2001) (Foundry Networks: “We have a lot of customers who have migrated off ATM to Gigabit Ethernet, but a lot of people are adamant about wanting to run both.”).

⁹⁴ See *Crandall/Sidak Declaration* ¶ 100.

⁹⁵ SBC Advanced Solutions Inc., Advanced Services Tariff, Tariff F.C.C. No. 1 § 5.4 (Sept. 10, 2001).

⁹⁶ *Id.* § 4.4.

Likewise, AT&T charges \$3,130 per month for Frame Relay service at DS-1 speed,⁹⁷ and charges the identical amount for ATM service at DS-1 speed.⁹⁸

In short, because these services are functionally similar and viewed as such by customers and suppliers, and because they are priced similarly, they comprise a discrete product market with no relevant sub-markets.

E. The Relevant Geographic Market For Purposes Of Analyzing Competition In Both Product Markets Is SBC's In-Region Territory.

Like long-distance traffic, a high-speed connection to the Internet "at its most fundamental level, involves a customer making a connection from one specific location to another specific location." As with a long-distance voice call, customers do not view broadband connections originating in different locations to be close substitutes for each other. Thus, each point-to-point market represents a separate geographic market for mass market advanced services. As noted, though, the Commission does not assess competition in every point-to-point market. To the contrary, it will only assess competition in a particular market or group of markets if there is credible evidence that there is or could be a lack of competitive performance in such market(s). In the *BOC Classification Order*, the Commission held that the level of competition could differ inside and outside a BOC's service area. Consistent with that holding, we assume, for purposes of our analysis, that the relevant geographic market for both mass market and larger business advanced services is SBC's in-region service area. As shown below, there are no other point-to-point markets within SBC's service area that require separate analysis.

⁹⁷ See IDC Frame Relay Study at Table 26.

⁹⁸ See *Crandall/Sidak Declaration*, ¶ 100. See *IDC ATM Study* at Table 21. SBC's DS-1 Frame Relay service is slightly cheaper than its ATM service at comparable speeds.

1. Mass Market Services.

As Crandall and Sidak show, there is no credible evidence that there is any particular point-to-point market or group of point-to-point markets within SBC's territory in which SBC could exercise market power in the provision of DSL transport services. There are more than one dozen providers of cable modem service in SBC territory. The leading providers all have upgraded the vast majority of their plant so that it is capable of providing cable modem service.⁹⁹ Indeed, the National Cable & Telecommunications Association reports that cable plant serving 83% of all U.S. households will be capable of providing cable modem service by the end of this year.¹⁰⁰ In stark contrast, SBC can offer DSL service to about half of its customers.¹⁰¹

Because upgraded cable plant is so ubiquitous, there are likely to be few, if any, customers to whom DSL, but not cable modem, service is available. But even if there are a handful of such customers, they would still have other broadband options. Conceivably they could obtain DSL service from a CLEC. Alternatively, they could obtain broadband Internet access service from a satellite or fixed wireless provider. Although wireless technologies still account for a relatively small share of the broadband Internet access market, they are ubiquitously available and growing rapidly.¹⁰² For example, the Strategis Group predicts that the number of U.S. satellite subscribers will grow to more than four million by 2005.¹⁰³ To be sure, upload speeds for satellite broadband services are slow, but as Professors Janusz Ordovery and

⁹⁹ See Crandall/Sidak Declaration, ¶¶ 43-44.

¹⁰⁰ *Id.*, ¶ 44, citing information obtained September 25, 2001 from NCTA's web site at http://www.ncta.com/industry_overview/indStat.cfm?indOverviewID+2.

¹⁰¹ *Id.*, ¶ 45.

¹⁰² *Id.*, ¶ 46.

¹⁰³ *Id.*

Robert Willig have testified on behalf of AT&T, such concerns are “irrelevant to the vast majority of users, who, if they worry about speed at all, are primarily interested in fast download times and do not send significant amounts of information.”¹⁰⁴ Moreover, many of the consumers to whom cable modem service is unavailable are likely users of DBS video service. (Indeed, cable modem service may be unavailable to these customers precisely because they chose DBS service for video.) Having already chosen a satellite-based service for video, these customers likely would be receptive to satellite service for their Internet access as well.

As for fixed wireless service, that too is a nascent, but growing, option. Frost & Sullivan project that there will be over 400,000 fixed wireless broadband subscribers nationally by the end of this year. Irrespective of whether this prediction holds true, fixed wireless service, like satellite service, “can be expected to fill any niche in which competition between DSL and cable modem service is less vigorous.”¹⁰⁵

2. Larger Business Services.

There also is no credible evidence that there is any particular point-to-point market or group of point-to-point markets in which SBC could exercise market power in the provision of advanced services to larger business customers.

First, from a demand-side perspective, customers that purchase packet switching services typically seek to connect multiple points that often are widely dispersed. For example, SBC’s average Frame Relay customer orders four PVCs, which means that they use this service to connect between five and eight different points. SBC’s average ATM customer orders two

¹⁰⁴ Reply Comments of AT&T Corp. and MediaOne Group, Inc., CS Docket No. 99-251, Sept. 17, 1999, Declaration of Janusz A. Ordover and Robert D. Willig, ¶ 100.

¹⁰⁵ *Crandall/Sidak Declaration*, ¶ 48.

PVCs, which means they use this service to connect either three or four different points. This is consistent with independent data showing that the average frame relay customer nationwide purchases a total of 12 switching ports, and that the average ATM customer nationwide purchases a total of 5 switching ports, because there is a close correlation between the number of switching ports a customer purchases and the number of distinct points it wishes to connect.¹⁰⁶ Moreover, many packet switching customers seek to connect not only multiple points within a single LATA, but also points within multiple LATAs or even in foreign countries. Indeed, only twelve percent of all Frame Relay and ATM revenues are from the provision of such services on a purely “local” basis.¹⁰⁷

Second, from a supply-side perspective, the competitive alternatives available throughout SBC’s region are largely uniform. As described in more detail below, the three largest providers of packet switching services to business customers in SBC’s region – and, for that matter, in the entire country – are AT&T, WorldCom, and Sprint. Nationwide, these three carriers account for roughly two-thirds of all revenues for packet switching services provided to business customers.¹⁰⁸ As these three carriers routinely state, they have ubiquitous packet switching services networks that are capable of serving customers anywhere.¹⁰⁹ In addition, numerous

¹⁰⁶ See *Crandall/Sidak Declaration*, ¶ 104, citing IDC ATM Study at 7.

¹⁰⁷ See *Crandall/Sidak Declaration*, ¶ 105; IDC Packet Switching Report at 24, 61.

¹⁰⁸ See *Crandall/Sidak Declaration*, ¶ 106.

¹⁰⁹ See, e.g., AT&T Corp., High Speed Packet Services, AT&T Frame Relay and ATM Services, <http://www.ipservices.att.com/brochures/atm.pdf> (“As the frame relay market leader, AT&T has the largest frame relay network,” which includes “620 domestic Points of Presence (POP) so local access circuit mileage is minimized.”); Mehta, Suketa, Telcos: answering the call for ATM, LAN Magazine, March 1996 (quoting AT&T spokesman: AT&T’s ATM network can offer service “virtually nationwide” – “Wherever a customer is, we’ll get them into the network.”); Sprint Corp., Sprint Business, Dedicated Access, Service and Support http://www.sprintbiz.com/esolutions/dedicated_access/service.html (Sprint has 320 domestic POPs for its packet switching network as well as 207 SONET Rings); MCI WorldCom, Inc., US Products, Data Networking, Frame Relay

other competitive carriers also provide packet switching services to business customers throughout SBC's region. For example, in SBC's region there are more than 50 CLECs that currently provide one or more packet switching services to business customers.¹¹⁰ Among the largest of these competitive carriers, for example, McLeod provides packet switching services to business customers in at least 34 major cities in SBC's region.¹¹¹ Allegiance serves at least 27 SBC cities; Global Crossing and XO each serves at least 18; Pac West serves at least 15; and Time Warner Telecom serves at least 10.¹¹²

IV. SBC DOES NOT HAVE IN-REGION MARKET POWER IN THE PROVISION OF ADVANCED SERVICES TO MASS MARKET CUSTOMERS.

Just six weeks ago, an article in *Barron's*, the Dow Jones Business and Financial Weekly, proclaimed "the cable television industry is clobbering the telephone companies in the race to bring high-speed Internet connections to American homes." "[T]he reports from the broadband front," the article continued, "are shockingly one-sided. Cable modems are swamping the high-speed data connections being offered by the telephone industry called digital subscriber lines, or DSL." Moreover, it stated, [l]eading cable analysts Douglas Shapiro of Banc of America

<http://www.worldcom.com/us/products/datanetworking/framerelay/index.phtml> (WorldCom has more than 700 POPs for its packet switching network – including more than 400 for Frame Relay Service.); *id.* ("By leveraging our metropolitan local fiber networks, WorldCom can provide metro pricing for Frame Relay service to more than 350 metropolitan areas . . . across the U.S.").

¹¹⁰ See *Crandall/Sidak Declaration*, ¶ 107; New Paradigm Resources Group, Inc., *CLEC Report 2001*, Ch. 13 (14th Ed. 2001) ("CLEC Report 2001").

¹¹¹ See *Crandall/Sidak Declaration*, ¶ 107; *CLEC Report 2001*, Ch. 13, Allegiance at 17-18, Global Crossing at 12-13, Pac West at 9-10, Time Warner Telecom at 18-19, XO at 16-17.

¹¹² See *Crandall/Sidak Declaration*, ¶ 107; Time Warner Telecom, Products and Services, Business Product Category, Broadband Internet and Data Services, <http://www.twtelecom.com/broadband.html>. ("The local Internet POPs are connected via diverse-routing Packet-over-SONET circuits through our core routers to form regional IP networks. Each regional network is then interconnected with each other to form the Time Warner Telecom national IP backbone. Additional local/regional circuits are dedicated for private and public peering arrangements for redundant IP traffic management.")

Securities and Richard Bilotti of Morgan Stanley both are forecasting that cable will exploit its first-mover advantage to keep its lead through the middle of this decade. And by then the war will be essentially over.”

The *Barron's* article went on to quote leading executives from the cable industry. Stephen Burke, president of Comcast's cable division “gloat[ed]:” “We're beating DSL 80% of the time in our franchise areas[.]” Joseph Collins, former head of Time Warner Cable and now chairman of AOL Time Warner's new interactive video division claimed “that he hasn't seen a public clamor for a new cable product like the one for cable modems since HBO began transmitting its signal by satellite in 1975 and people literally chased down company trucks in their neighborhoods to get hooked up.”

This *Barron's* report is by no means the only report trumpeting the success of cable companies in the consumer broadband market. A study released this summer by Multimedia Research Group predicted that cable companies will continue to “dominate” the U.S. broadband market. And virtually all analysts that follow the industry agree. In addition to Morgan Stanley and Banc of America, the Yankee Group, Forrester, Gartner Dataquest, Jupiter, and Forward Concepts all predict that cable modem service will far outpace DSL service through the middle of the decade. See Table 2.

Table 2¹¹³

Forecasts for U.S. DSL, Cable Modem, Broadband, Online, Fixed Wireless & Satellite Households

DSL (millions)

Information Source	2000	2001	2002	2003	2004	2005	2006
Forrester (10/00)	1.25	2.96	6.61	10.07	14.06	17.75	
Yankee Group (8/01)		3.30	5.00	6.70	8.40	10.50	
Gartner Dataquest (6/00; pub 12/00)	1.49	3.00	5.32	7.52	9.81		
Jupiter (00Q4)	1.19	2.53	4.44	6.76	9.29	11.76	
Forward Concepts (2000)	2.00	3.40	5.00	7.40	10.50		

Cable Modem (millions)

Information Source	2000	2001	2002	2003	2004	2005
Forrester (10/00)	3.74	7.76	11.42	15.81	19.43	22.42
Yankee Group (8/01)		7.00	9.60	11.90	14.00	15.70
Gartner Dataquest (6/00; pub 12/00)	3.35	5.87	8.80	11.45	13.74	
IDC (04/01)	3.80	6.50	9.60	13.00	16.60	20.40
Jupiter (00Q4)	3.38	5.54	7.87	10.123	12.09	13.84
Forward Concepts (2000)	3.40	5.70	7.90	10.50	14.50	

Broadband Households (millions)

Information Source	2000	2001	2002	2003	2004	2005	2006
Forrester (6/01)	6.70	10.80	18.80	29.30	40.00	48.60	54.40
Yankee Group (1/01)	5.10	9.60	14.80	20.10	26.00	30.80	
Gartner Dataquest (6/00; pub 12/00)	6.00	11.00	17.30	23.10	28.90		
Jupiter (00Q4)	4.78	8.60	13.29	18.54	23.80	28.80	
Forward Concepts (2000)	5.40	9.10	12.90	17.90	25.00		

¹¹³ Jupiter information obtained from a research summary, not actual report. Gartner Dataquest information has been updated with an April 23, 2001, market analysis containing the figure "Demand for High-Speed Access among U.S. Online Households" – SBC does not have access to this analysis.

The Commission, itself, has recognized that LECs do not have market power in their provision of DSL service. It has noted “a continuing increase in consumer broadband choices within and among the various delivery technologies,”¹¹⁴ that “no group of firms or technology will likely be able to dominate the provision of broadband services,”¹¹⁵ and that “the preconditions for monopoly appear absent” in the consumer broadband market.¹¹⁶

This petition, therefore, breaks no new ground with respect to advanced services provided for use by mass-market customers. It simply asks the Commission to reaffirm what it and virtually every industry expert has previously recognized: that LECs in general, and SBC, in particular, have no market power in this market.

All of this is confirmed by an application of the Commission’s traditional test for non-dominance. We proceed with that analysis below.

A. SBC’s Competitors Have Captured Two Thirds Of The Broadband Internet Access Market And Are Exhibiting Faster Growth Than SBC.

When the Commission declared AT&T to be non-dominant in the provision of domestic interstate interexchange services, AT&T’s market share of such services was estimated to be sixty percent.¹¹⁷ Likewise, AT&T’s share of the international message telephone service market was estimated to be sixty percent when AT&T was declared non-dominant in the provision of

¹¹⁴ *Fixed Wireless Competition Order*, ¶ 19.

¹¹⁵ *Id.*

¹¹⁶ *First Advanced Services Report*, ¶ 48. *See also Applications for Consent to the Transfer of Control of Licenses and Section 214 Authorizations from MediaOne Group, Inc., Transferor, to AT&T Corp., Transferee*, 15 FCC Rcd 9816 (2000) (*AT&T/MediaOne Merger Order*), ¶¶ 116-119 (finding “significant actual and potential competition” cable modem service from alternative broadband providers); *UNE Remand Order* at ¶ 308 *quoted at n. 9 supra*.

¹¹⁷ *AT&T Reclassification Order*, ¶ 62.

those services, and in a number of countries, AT&T's market share was significantly higher.¹¹⁸ In contrast, as shown in the *Crandall/Sidak Declaration*, SBC's share of the market for mass market advanced services in its region is only about thirty percent.¹¹⁹

As Crandall and Sidak explain, this market share data should be dispositive. Although the Commission has correctly recognized that, in certain circumstances, market share data are not necessarily a reliable indicator of market power; indeed, it did so in the context of a company (AT&T) that had a relatively large, but declining, market share in an industry characterized by high demand and supply elasticities. In that context, the FCC properly recognized that market share is not necessarily indicative of market power.

But while a large market share does not, in itself, show market power, a low market share generally indicates a *lack* of market power. That is because firms with low market share usually cannot affect the price of a product by restricting their output.¹²⁰ The Commission recognized this in the *BOC Classification Order* when it noted that the ability to raise one's prices by restricting one's output "usually requires a large market share."¹²¹ Antitrust authorities also have recognized that a low market share is generally indicative of a lack of market power.¹²²

To be sure, the Commission declined to give dispositive weight to the zero market shares of the BOC affiliates in the *BOC Classification Order*. Rather, while recognizing that this

¹¹⁸ AT&T's average market share in 76 select countries was 74%, and AT&T faced no competition at all in four countries. *Motion of AT&T Corp. to be Declared Non-Dominant for International Service*, 11 FCC Rcd 17963 (1996), ¶ 40.

¹¹⁹ For the sources of this market share data, see *Crandall/Sidak Declaration* at ¶¶ 54-56.

¹²⁰ *Crandall/Sidak Declaration*, ¶¶ 57-58.

¹²¹ *BOC Classification Order*, ¶ 83.

¹²² ABA Antitrust Section, *Antitrust Law Developments*, 213-214 (3d ed. 1992). See also *United States v. Aluminum Co. of America*, 148 F.2d 416-424 (2nd Cir. 1945) (it is doubtful whether a 60 percent market share would constitute a monopoly, and certainly 33 percent is not).

market share “suggests that the affiliate will not initially be able to raise prices by restricting output,” the Commission deemed it necessary to address whether the BOC might quickly acquire a high market share after entry into the market. As Crandall and Sidak point out, that concern is inapt here:

[The *BOC Classification Order* addressed] a BOC entering a new market for the first time. In the present case, in contrast, SBC has been actively competing in the broadband Internet access market for two years. The Commission need not speculate about whether SBC, upon entry or soon thereafter, can acquire market power in broadband services. In two years of making broadband deployment a top company priority, SBC has not come close to doing so.¹²³

Indeed, they note, “far from acquiring market power, telephone companies have *lost* ground to their cable competitors in the broadband Internet access market.”¹²⁴ According to an FCC report issued August 9, 2001, cable companies added 2.2 million cable modem lines last year, while telephone companies added only 1.6 million DSL lines. The Yankee Group claims that the gap was even greater – 2.6 million cable modem lines versus 1.3 million DSL lines.

Whichever number is correct, one thing is for sure: telephone companies are not on the verge of erasing the cable companies’ lead in the broadband Internet access market. Their low market share is not ephemeral. In fact, cable companies are not merely adding more subscribers than telephone companies; they are doing so by *increasing* margins. Thus whereas cable operators won 59% of new broadband subscribers in the first quarter of 2001, they won 64% in the second quarter.¹²⁵

¹²³ Crandall/Sidak Declaration, ¶ 59.

¹²⁴ *Id.*, ¶ 60.

¹²⁵ MORGAN STANLEY DEAN WITTER, Telecom Trend Tracker, Aug. 17, 2001, p. 15. *See also* Shawn Young, “How Do I Choose between Cable Modem and DSL?,” *Wall Street Journal*, Sept. 10, 2001 at

B. Mass Market Users Of Broadband Services Have Highly Price-Elastic Demand.

As noted above, SBC's low market share, in itself, shows that SBC lacks market power in the provision of advanced services used by mass market customers. The fact that, as shown below, mass-market users of advanced services exhibit highly elastic demand for such services confirms that SBC does not have market power in its provision of DSL services.¹²⁶

In previous orders assessing market power, the Commission has relied exclusively on indirect evidence of demand elasticity. In the *AT&T Reclassification Order*, for example, it based its finding of high demand elasticities in the long-distance market on evidence of high churn rate among AT&T's mass market and its previous finding that larger business customers have highly price-elastic demand.¹²⁷

Crandall and Sidak, however, present not only the type of indirect evidence of high demand elasticities on which the Commission has relied in the past, but also direct quantitative evidence of the own-price elasticity of demand for mass market broadband Internet access services.¹²⁸ As they show, the own-price elasticity of demand (the percent change in demand for every one percent increase in price) is between -1.184 and -1.462. Stated differently, for every one percent increase in the price of DSL service, demand drops by an amount between 1.184 and 1.462 percent. Significantly, this estimate of the own-price elasticity of demand is based on a study that was conducted by academicians with no connection to this proceeding or to SBC. In

R15 (citing Merrill Lynch report that cable companies added 667,000 subscribers in the second quarter, compared with 374,000 new DSL subscribers).

¹²⁶ See *Crandall/Sidak Declaration*, ¶¶ 62-71.

¹²⁷ See *id.*, ¶ 62.

¹²⁸ See *id.*, ¶¶ 63-67.

fact, the higher estimate (-1.462) in the range reflected their estimate of the own-price elasticity of demand. Because their conclusion was based on data from the first quarter of 2000, Crandall and Sidak decided to update it using nearly the identical econometric model and data from the fourth quarter of 2000 and the first quarter of 2001. The conclusion of both studies – that an increase in the price of DSL service decreases total revenues – is direct and compelling evidence of high elasticity of demand.

This direct evidence of high demand elasticities is corroborated by the very type of indirect evidence on which the Commission has relied in its consideration of demand elasticity in previous proceedings.¹²⁹

For example, SBC's churn rate is extremely high. In the *AT&T Reclassification Order*, the Commission concluded that residential users of long-distance services had highly price-elastic demand based on evidence that as many as twenty percent of AT&T's residential customers switch carriers at least once a year. The Commission found that "[t]his high churn rate among residential consumers ... demonstrates that these customers find the services provided by AT&T and its competitors to be very close substitutes."¹³⁰

The churn rate for SBC's DSL service is well above that reported by AT&T. Between January and July 2001, SBC's churn rate was 5.7% monthly – almost three times the rate on which the FCC relied in concluding that long-distance consumers exhibit high demand-elasticity.¹³¹

¹²⁹ See *id.*, ¶ 67.

¹³⁰ *AT&T Reclassification Order*, ¶ 63.

¹³¹ See *Crandall/Sidak Declaration*, ¶ 68.

Further evidence of high demand elasticity can be found in customer surveys, which show that the features that consumers most value from broadband Internet access service offerings are not unique to DSL service. Specifically, as noted above, these surveys show that consumers choose a broadband Internet access service primarily for four reasons: (1) to increase the speed and efficiency with which they can surf the web; (2) to gain access to applications that require high bandwidth; (3) to obtain an “always-on” connection; and (4) to free up their telephone line when they are using the Internet. The fact that each of these features is available, not just from DSL service, but also from other broadband platforms, including cable modem service, suggests that there are high cross-elasticities of demand between DSL and the other platforms that offer these features. And, in fact, customer surveys confirm that this is the case.¹³² When asked point-blank, large numbers of consumers who were interested in subscribing to a broadband Internet access service indicated that they had no preference between a DSL or a cable modem platform.¹³³

Finally, like business customers, users of broadband Internet access services tend to be more sophisticated and knowledgeable about the services they use than is the average consumer. They are more likely to be aware of the various options available to them, and they are more likely to make an informed choice with respect to those options.¹³⁴ The Commission placed substantial weight on this consideration in both the *AT&T Reclassification Order* and the *AT&T Streamlining Order*.

¹³² See *Crandall/Sidak Declaration*, ¶ 69.

¹³³ See YANKEE GROUP, “Residential Broadband: Cable Modems and DSL Reach Critical Mass,” March 2001 at Exhibit 12.

¹³⁴ *Id.* at 7; see *Crandall/Sidak Declaration*, ¶ 70.

For all these reasons, there is substantial direct and indirect evidence that there is high price-elasticity of demand among mass-market users of DSL services. This evidence further confirms that SBC is not dominant in its provision of DSL transport service.

C. SBC's Competitors Could Absorb Immediately, And Without Additional Investment, Large Numbers Of SBC's DSL Subscribers.

A third factor the Commission has considered in determining whether a firm has market power is supply elasticity - *i.e.*, the extent to which existing or new competitors can absorb new customers, both immediately and incrementally, over time. This inquiry seems superfluous, given SBC's low and stagnant market share, but here, again, the evidence only confirms that SBC lacks market power in the provision of advanced services to mass market customers.

In the *AT&T Reclassification Order*, the Commission concluded that supply elasticities in the domestic long-distance market were high based on evidence that AT&T's competitors "can add significant numbers of new customers with their existing capacity and add incrementally to this capacity as new customers are added to their networks."¹³⁵ The same is true with respect to SBC's provision of mass-market broadband Internet access services. As many as four fifths or more of all homes in the United States are passed by cable facilities that are capable of providing cable modem service, and there is no reason to believe the number is any less in SBC's region.¹³⁶ According to NCTA, more than 81 million homes will be passed by cable modem service at the end of 2001. Yet only six or seven million of these households will subscribe to cable modem

¹³⁵ *AT&T Reclassification Order*, ¶ 57. AT&T had submitted uncontroverted evidence that its competitors could immediately absorb, without additional investment, 15% of AT&T's switched demand, and that they could absorb additional customers over time – amounting to almost two thirds of AT&T's switched traffic after one year. *Id.* at ¶ 47.

¹³⁶ See Section III(E) *supra*.